

What is claimed is:

1. A system for processing can end shells into easy open can ends having a foil type tab covering a pour opening, comprising

first and second sets of progressive tooling for working on end shells, said tooling having cooperating upper and lower parts and being arranged in successive stations along a predetermined processing path to form a predetermined pour opening in the shells and then to attach a foil type tab over such pour openings,

a continuous conveyor belt having regularly spaced openings therein spaced apart corresponding to the spacing of the tooling stations, said openings extending along at least one lane longitudinally along said belt,

first and second drums supported respectively at opposite ends of said predetermined path to define upper and lower flights of said conveyor belt, the path extending through said first and second sets of tooling,

means for driving said belt around the first and second drums in incremental steps corresponding to the spacing of the tooling and moving said upper flight through said first and second sets of tooling when the tooling parts are opened,

shell carrier nests fitted into said openings in said belt, said nests including an array of flexible fingers adapted to engage a major extent of the periphery of a shell to hold the shell therein during conversion work on the shell as the shell is passed through said tooling,

attachment means on each of said nests fastening the respective said nest to said belt along a line transverse to said belt to allow each said nest to pass around said drums,

a loading station along said upper flight of said belt located between said first drum and the first set of tooling stations,

means at said loading station for presenting an end shell to each nest located at said loading station and placing a presented end shell onto said fingers.

means defining an unloading station beyond said second set of tooling whereby each completed end processed through said tooling sets is removed from said belt,

means for moving a web of foil tab material in increments over and across said belt at the location of the first stations of said second set of tooling to present foil material over a pour opening in a shell,

said second set of tooling including means for blanking a tab from the foil material and pressing the resultant tab onto the shell as a closure to said pour opening and further means for reforming the region of the shell around the pour opening with the tab in place.

2. A conveyor system as defined in claim 1, further including insertion means located between said loading station and the first of said tooling stations and driven synchronously with said progressive tooling to insert the end shell into full engagement with said fingers of said nest.

3. A conveyor system as defined in claim 1 wherein
said nests each include a base ring having a peripheral ledge dimensioned to seat upon the edge of said openings in said belt, said fingers being formed as integral inwardly projecting extensions from said base ring spaced apart around the interior of said base ring, said fingers include shoulders thereon defining an interrupted circular surface adapted to press against the periphery of an end shell to retain the shell stationary in the nest while permitting limited motion of the shell as it is engaged by the tooling.

4. A can end conversion system comprising at least one flexible belt supported in a loop path including upper and lower flights,

means for moving said belt lengthwise in a predetermined direction with an intermittent motion of predetermined increments,

a plurality of nests attached to said belt along centerlines which are parallel to the loop path of said belt and extending in at least one lane longitudinally of said belt whereby each nest can traverse the extent of the loop path along said upper and lower flights,

each said nest having at least one nest ring for receiving and securely holding a can end shell, the nest rings in the respective nests being aligned along said at least one lane

longitudinally of said belt, successive ones of said nests being spaced apart a common distance which is equal to the increment of motion of said at least one belt,

means for raising and lowering a section of said belt and attached nests along said upper flight of said belt during each incremental motion thereof,

first and second sets of progressive tooling for working on end shells, said tooling having cooperating upper and lower parts and being arranged in successive stations along a predetermined processing path to form a predetermined pour opening in the shells and then to attach a foil type tab over such pour openings,

means for moving a web of foil tab material in increments over and across said belt at a location along said belt past the first set of tooling to present foil material over a pour opening formed in each shell,

the second set of tooling including means for blanking a tab from the foil material and pressing the resultant tab onto the shell as a closure to pour opening and further means for reforming the region of the shell around the pour opening with the tab in place, and

means for unloading completed can end shells from the nests.

5. A system as defined in claim 4, wherein said means for unloading is located at the beginning of the lower flight of said belt, adjacent the beginning of the lower flight of said belt.

6. A system as defined in claim 4, wherein there are a plurality of conveyor belts supported parallel to each other and each belt having at least one lane of nests,

said means for moving foil tab material extending across all of said belts, and

said means for blanking tabs are relatively oriented in adjacent lanes such that a substantial majority of the foil tab material is cut from the web of foil material.

7. In a system for processing can end shells into easy open can ends having a foil type tab covering a pour opening, a tab sealing and reformation station comprising

a tooling set including upper and lower tools adapted to close upon a shell with an attached tab, said upper tool including a reforming surface shaped to define a taper about the

periphery of the pour opening, extending outward and downward from the pour opening rim, said lower tool including an anvil surface shaped to conform to said reforming surface,
at least one of said upper and lower tools including a heater.

8. A reforming tooling set as defined in claim 7, further including heaters in both said reforming surface and said anvil surface, and a thermocouple in said anvil surface for providing a reference signal for control of said heaters.

9. A reforming tooling set as defined in claim 7, wherein said reforming surface is formed of a heat conducting hard rubber material having sufficient resilience to smooth the foil material of the tab over the reformed region about the pour opening.

10. A process for converting can end shells into easy open can ends having a foil type tab covering a pour opening, comprising

providing first and second sets of progressive tooling for working on end shells, said tooling having cooperating upper and lower parts and being arranged in successive stations along a predetermined processing path to form a predetermined pour opening in the shells with the first tooling set and then to attach a foil type tab over such pour openings with the second tooling set,

providing a continuous conveyor belt having regularly spaced openings therein spaced apart corresponding to the spacing of the tooling stations, said openings extending along at least one lane longitudinally of the belt,

supporting the belt on first and second drums respectively at opposite ends of the predetermined path to define upper and lower flights of said conveyor belt, the upper flight extending through the first and second sets of tooling,

driving the belt around the first and second drums in incremental steps corresponding to the spacing of the tooling and thereby moving the upper flight through the first and second sets of tooling when the tooling parts are opened,

providing carrier nests fitted into the openings in the belt, the nests including an array of flexible fingers adapted to engage a major extent of the periphery of a shell to hold the shell therein during conversion work on the shell as the shell is passed through the tooling,

providing a loading station along the upper belt flight located between the first drum and the first set of tooling stations,

presenting an end shell to each nest located at the loading station and placing a presented end shell onto the fingers.

providing an unloading station beyond the second set of tooling whereby each completed end processed through the tooling sets is removed from the belt,

moving a web of foil tab material in increments over and across the belt at the location of the first stations of the second set of tooling to present foil material over a pour opening in each shell,

blanking tabs from the foil material and pressing the resultant tab onto the shells as a closure to the pour openings.

11. The method defined in claim 10, including the additional step of reforming the region of the shell around the pour opening with the tab in place.